FINAL REPORT

Tyler Potterfield Memorial Bridge South Bank Habitat Restoration & Native Plant Demonstration Project

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Richmond Regional Planning District Commission, 9211 Forest Hill Avenue, Suite 200, Richmond, VA 23235

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Project Purpose

This habitat restoration project supported the design and installation of a native plant demonstration rain garden and interpretive sign on the south bank of the James River in the City of Richmond. Part of a larger undertaking that has dramatically improved public access to the James River, the Potterfield Memorial Bridge is a bicycle and pedestrian bridge across the James River in downtown Richmond, connecting north bank Brown's Island to the neighborhood of Manchester on the south bank. The grant funds associated with this project maximize both the accomplishment and public awareness of goals central to the Coastal Zone Management Program: habitat restoration, public access, and water quality.

Figure 1 depicts the location of the project in the City of Richmond. Figure 2 details the south bank bridge and path network.

Figure 1: Map of Potterfield Bridge in Richmond, VA

Figure 2: Details of south bank of Potterfield Bridge

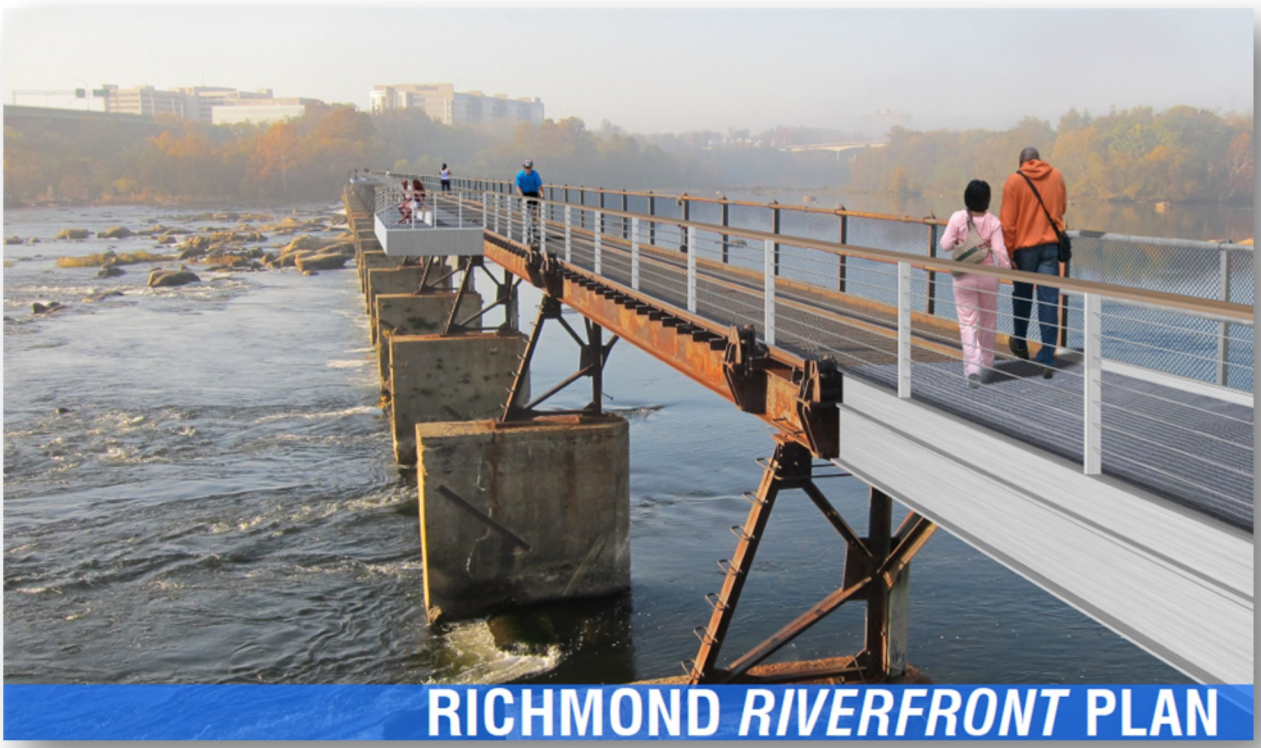
Project Context

Richmond Riverfront Plan

In 2012, Richmond City Council adopted the Richmond Riverfront Plan as part of the City's Master Plan and Downtown Plan. The study area for the plan spans the north and south banks of the James River along a 2.25 mile stretch running through downtown. A major theme of the plan is to expand and redirect visual and physical access to the James River as a centerpiece of downtown Richmond. Featured on the Plan's cover (Figure 3), a bicycle-pedestrian Dam Walk bridge making use of the 116-year old piers of the levee built to divert water into an industrial canal of downtown Richmond.

More information about the Riverfront Plan is available on the City's website: http://www.richmondgov.com/PlanningAndDevelopmentReview/RiverfrontPlan.aspx .

Figure 3: Cover of Richmond Riverfront Plan



Tyler Potterfield Memorial Bridge

In December of 2016, the City of Richmond officially opened the Tyler Potterfield Memorial Bridge to the public. The bridge creates a new, safe, and ADA-accessible link for cyclists and pedestrians, filling a void identified in the Richmond Riverfront Plan. As seen in Figures 4 and 5, the bridge is an elevated Dam Walk structure crossing the James River joined by a series of shared use paths on the north and south banks of the river. The bridge connects Brown's Island in downtown Richmond on the north bank with the neighborhood of Manchester on the south bank, a previously economically disadvantaged and industrial area undergoing a revitalizing residential development boom.

Figure 4: Potterfield Bridge design

The Potterfield bridge is a valuable addition to the James River Park System, a 550-acre park system running along the north and south banks of the James River maintained largely in a natural state offering water access and trails. Given its location the bridge serves as both a major recreational and commuting connection across the James River. The bridge has been very well received by the public. In the first month open, the bridge saw more than 35,000 visitors.

Figure 5: People crossing the James River on the Potterfield Bridge.

Photo credit: City of Richmond

Habitat & Environment

During construction and installation of the bridge and associated paths, clearance of invasive vegetation along the route of the bridge structure and new earthwork on the south bank was necessary. As Figure 6 illustrates, much of the area of land disturbance on the south bank was colonized by invasive species such as kudzu and English ivy. As seen in Figure 7 the new slopes created on the south bank and on the perimeter of the new bridge structure afforded opportunities for re-vegetation of native plants and habitat restoration. The project aimed to replant only native species thereby improving the value of the space as habitat and presenting an opportunity for educational interpretation.

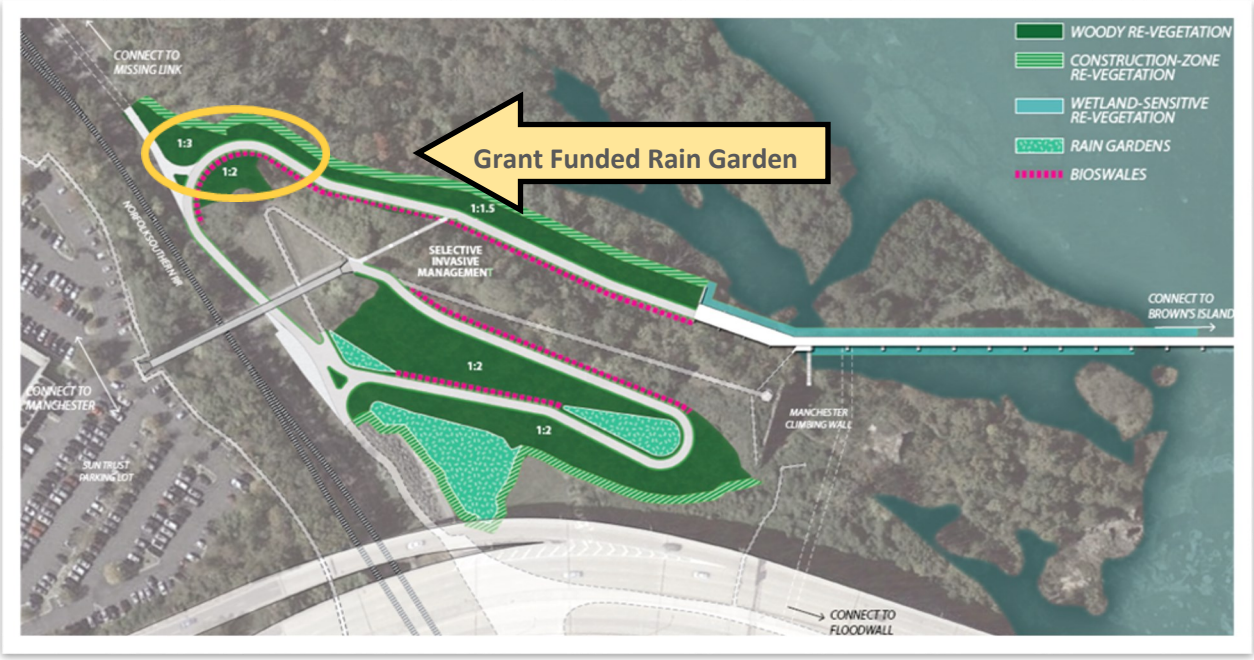
Figure 6: Invasive overgrowth on south bank of James River

Figure 7: photograph of site under construction

Photo credits: City of Richmond

The sloped nature of the site and its riverside location made green infrastructure for stormwater management a key part of the project. Bioswales and two rain gardens filter runoff for the entire south bank project area for water quantity and quality; one of these rain gardens was funded by this grant. Figure 8 below provides an overview of the paths and planting areas on the south bank. As indicated in the legend, the green areas mark the location of green infrastructure for stormwater filtration. The rain garden funded by this grant is circled in yellow; all plants purchased using grant funds were planted in this rain garden.

Figure 8: Planting plan for the south bank of the Potterfield Bridge



Habitat Restoration Project Description

Native Plant Demonstration Rain Garden

The habitat restoration funded by this project installed 185 native plants along a shared use path on the south bank of the James River at the Tyler Potterfield Memorial Bridge. The planting area serves as a rain garden and includes the following plants:

Athyrium Asplenioides/ Southern Ladyfern
Osmunda Cinnamomea/ Cinnamon Fern
Pteridium Aquilinum/ Bracken Fern
Ilex Verticallata/ Winterberry
Vaccinium Corymbosum/ High Bush Blueberry
Gaylussacia Frondosa/ Dangleberry
Cornus Amomum/ Silky Dogwood
Cornus Racemosa/ Gray Dogwood
Itea Virginica/ Virginia Sweetspire
Vacinium Angustifolium/ Lowbush Blueberry

Figure 9 is a picture of the south bank habitat restoration.

Figure 9: Photograph of the grant-funded rain garden.

Interpretive Sign

The presence of this green infrastructure along a major recreational and active transportation amenity means that it is a publicly prominent part of the project, easily observed and understood through interpretive signage by visitors. Accompanying the habitat restoration, an interpretive sign to inform the public about the importance of native plants and their role in water quality protection across the landscape was installed. The sign was designed to coordinate with other interpretive and way-finding signage associated with the Potterfield Bridge. Figures 10—12 depict the location of the interpretive sign and the sign itself. The grant credit language is difficult to read in Figure 12. The sign reads "This habitat restoration project was funded in part by the Virginia Coastal Zone Management Act grant from NOAA."

Figure10: Location of the interpretive sign in the grant-funded rain garden marked with a red star

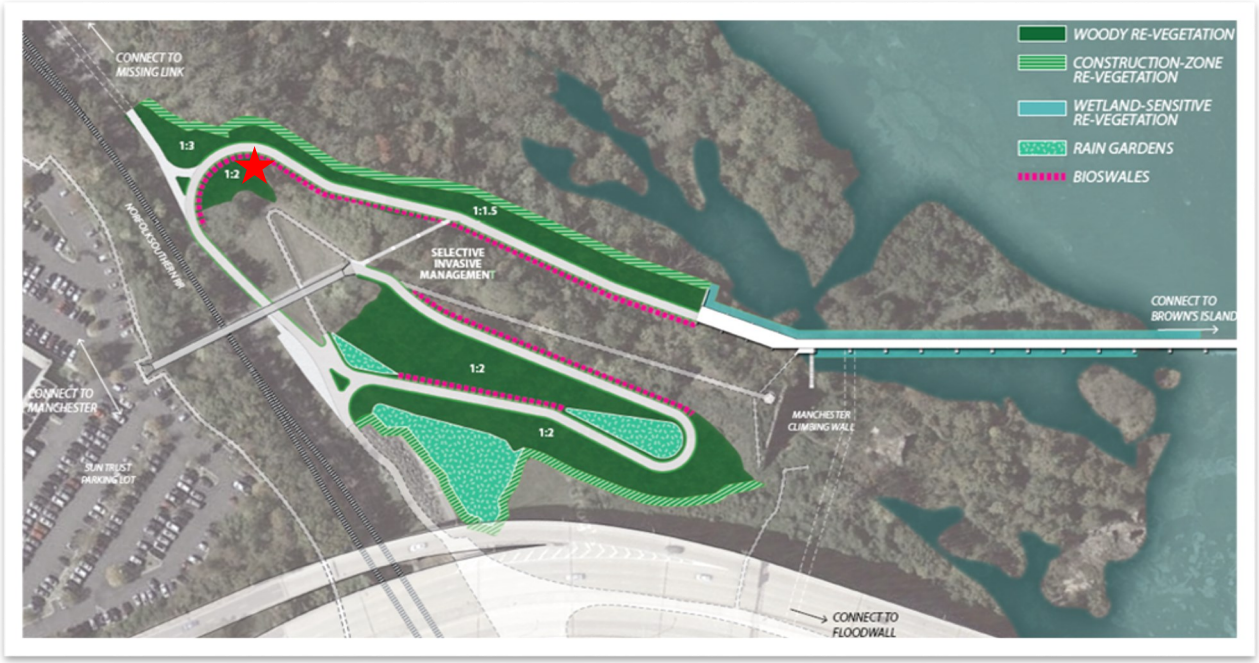


Figure11: The interpretive sign installed in the grant-funded rain garden

Figure12: Interpretive sign installed at the grant-funded native plant rain garden

Native Plants

in the Potterfield Bridge Landscape

The T. Tyler Potterfield Memorial Bridge project was planted exclusively with Virginia native plants, well-adapted to the local climate, annual precipitation, and soils. They promote biodiversity by providing habitat for native insects, birds, and animals and often benefit from symbiotic relationships with these species. In addition, they reinforce the ecology of the James River, enhancing the regional character of the riverfront.

The T. Tyler Potterfield Memorial Bridge plantings include:

18 tree species
29 shrub species
5 fern species
1 vine species
5 unique meadow seed mixes

For more information on native plants, search **Virginia CZM Native Plants.**

Canada Serviceberry, Juneberry

Amelanchier canadensis

Serviceberry is good for multi-season interest and smaller gardens. At least 40 bird species eat the fruit of Amelanchier species, including Cardinals, Cedar Waxwing, and Towhees. It is beneficial to native bees.

Flowering Dogwood

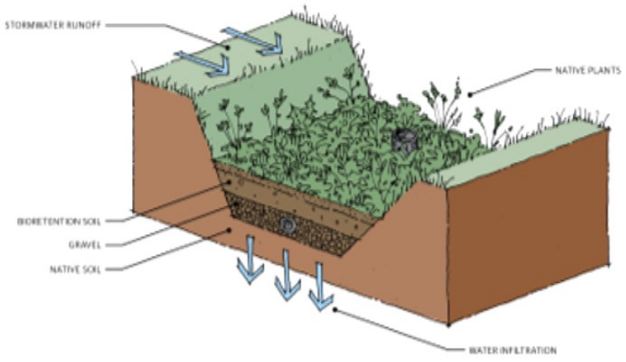
Cornus florida

More resistant to dogwood anthracnose fungus (*Discula destructiva*) if planted in open areas. If planted in full-sun, it will need to be watered during extended dry spells. Native Americans used the roots and the bark to make a red dye.

Sweetbay Magnolia

Magnolia virginiana

Sweetbay Magnolia was introduced into European gardens as early as 1688. Called "Beavertree" by colonists who caught beavers in traps baited with the fleshy roots.



The bioretention basin in front of you is one of two on site. During a rain event, runoff pools in the basin and slowly infiltrates into the ground. More than two dozen native plants are planted in the basin to absorb phosphorus and other nutrients in the runoff from paved areas, like the path you are traveling, and therefore improve water quality.

By reducing the overall quantity of runoff through infiltration, and also improving the quality of water through plant uptake, these two basins exceed the requirements for the Chesapeake Bay Preservation Act on the T. Tyler Potterfield Memorial Bridge and help conserve our natural resources.

Virginia Coastal Zone MANAGEMENT PROGRAM

Conclusion

The Potterfield Bridge habitat restoration and native plant demonstration rain garden project restored native habitat in a section of the James River that was colonized by invasive species. Each week several thousand people pass the project location along a recreation and active transportation route in downtown Richmond as they commute to work or tour the City of Richmond as visitors. This project serves as a showcase of the beauty and functionality of native plants and habitat to create a pleasing space and protect water quality. High visibility makes the project an ideal location for educational interpretive sign about these accomplishments.